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CHAPTER VI

ENVIRONMENTAL LAW AND CCS IN THE EU AND THE IMPACT ON THE NETHERLANDS

KARS J. DE GRAAF and JAN H. JANS

1. INTRODUCTION

The current environmental regulatory framework for capture, transport and storage of CO₂ (CCS) is at a few points unclear. Some existing regulations may need to be adjusted for a wide application of CO₂ storage projects. CCS is of course an appealing climate change mitigation option, but on the other hand it is of great importance to prevent or reduce as far as possible negative effects on the environment and any resulting risk to human health from transport and storage of CO₂.¹ Recent amendments to key international legal regimes – like the London Dumping Convention and the OSPAR treaty² – and the introduction of a European legislative framework on CCS will have significant effects on the existing national environmental regulatory framework that is the main topic of this contribution. Therefore, on 23 January 2008 the European Commission tabled a proposal for a Directive on the geological storage of carbon dioxide (hereinafter the Geological Storage of Carbon Dioxide Directive or CCS Directive).³ This proposal was amended and adopted by the European Parliament on 17 December 2008. It was published as Directive 2009/31 and should be transposed into Dutch law by 25 June 2011. Although this CCS Directive mainly aims at ensuring that all Member States create a legal framework for underground storage of CO₂, it also aims at providing a regulatory framework for the *environmentally* safe capture, transport and storage of CO₂. It was felt that if no action were taken at European level, many pieces of existing legislation on waste, water and industrial emissions could apply to CCS and would create legal uncertainty. The first question of this contribution is to assess which environmental law standards apply and what changes are and should be

¹ See Article 1 of the Directive on the geological storage of carbon dioxide (the CCS Directive). Also see the proposal by the Commission, see COM(2008) 18 final.

² See chapter 2 by Marcel Brus.

³ COM(2008) 18 final; see <<http://ec.europa.eu/environment/climat/ccs/>>.

envisaged. In light of the European legislative framework and the proposed changes to Dutch national environmental law, we will look at the future role of the Dutch Environmental Management Act in relation to CCS.

Which environmental law standards already apply and which changes are necessary to prevent or reduce possible negative effects on the environment or human health? Do existing environmental standards unnecessarily obstruct the deployment of CCS?⁴ This chapter answers these questions in light of existing (European) environmental law and the new CCS Directive, taking into account the three main stages of CCS: capture, transport and storage. We will also focus on the consequences for the Dutch Environmental Management Act (EMA; *Wet milieubeheer*), which is the most important Dutch environmental law Act and provides an integral approach to the protection of the environment.

In light of the focus of this chapter, one could argue that we are mainly interested in Chapter 7 (Amendments) of the CCS Directive, which actually deals with some, if not all existing European environmental law that could potentially obstruct the deployment of CCS in Europe. Most amendments are quite clear and straightforward: the implications of the new directive with respect to the Water Framework Directive 2000/60 and the Environmental Liability Directive 2004/35 are quite clear. Article 32 of the CCS Directive amends Article 11(3)(j), of the Water Framework Directive that would – if not amended – prohibit the injection of CO₂ into saline aquifers.⁵ Article 34 of the CCS Directive amends Annex III of the Environmental Liability Directive. That directive will apply to the operation of CO₂ storage sites.⁶ It is however still an outstanding issue whether the Seveso II Directive 1996/82⁷ should apply to the capture of CO₂. This is currently under investigation. Of course there are also other European directives, mainly in the area of environmental law, that are relevant for the

⁴ Quite informative on this subject is the University College London website of their Carbon Capture Legal Programme; see <www.ucl.ac.uk/cclp/index.php> and the issue of the *Journal for European Environmental & Planning Law* Vol. 4 (2007), Number 5 that is dedicated to CCS; also see M. Schurmans & A. van Vaerenbergh, 'The Proposed EU Legislation on Geological Carbon Capture and Storage (CCS): A First Impression of the Commission's Proposed Framework on CCS', *European Energy and Environmental Law Review* Vol. 17 (2008), Issue 2, p. 90–105 and S. Brockett, M. Doppelhammer & Mihai Tomescu, 'The European Commission's proposed Directive on geological storage of carbon dioxide', *Journal for European Environmental & Planning Law* Vol. 5 (2008), Number 2, p. 199–213.

⁵ Article 6(3)(a) of the Groundwater Directive 2006/118 ensures that the exemptions on particular activities in Article 11(3)(j) of the Water Framework Directive also apply to the Groundwater Directive, which will include the amendment exempting CCS activities made to the Water Framework Directive by Article 32 of the CCS Directive.

⁶ See Chapter 9 by Mark Wissink.

⁷ The question whether the Seveso II Directive 1996/82 should apply to the capture of CO₂ is an outstanding issue which is currently under examination.

deployment of CCS in Europe. However, the European legislator did not want to amend those directives via Chapter 7 of the CCS Directive. As an example we could point to the Habitats Directive 1992/43 and the Wild Birds Directive 1979/409. Although the objective of these directives to protect nature and biodiversity could under circumstances be relevant for the allocation of capture installations, transport pipelines and storage sites for CCS, they will not be further discussed. These, and other possibly relevant environmental directives, will not be discussed in this chapter of the book.

What changes are being discussed in this chapter? Three questions are the main subject of the research in the sections below. In what way will regulation for large emitters (have to) change due to the new CCS Directive (section 2)? Under what circumstances will an Environmental Impact Assessment be required (section 3)? Will CO₂ that is captured, transported and stored be seen as waste (section 4)? The three questions relate to three subjects of environmental law regulated in the Dutch EMA that are without doubt related to the capture, transport and underground storage of CO₂. The first question – that will become increasingly relevant with the rising of CCS on the political agenda – concerns the capturing of CO₂ from industries with major emissions. Secondly, there is the question under which circumstances and for what activities related to CCS an obligation for an Environmental Impact Assessment (EIA) exist. The obligation to perform such an assessment is regulated by European law and transposed in Chapter 7 of the EMA and in the EIA-Decree that is based on that chapter. A third question concerns the existing regulation on the treatment of waste, which is, more or less, extensively regulated by European law, the Dutch EMA and the Dutch National Waste Management Plan (*LAP*). As we discuss the questions in the sections below, one should remember that the answer to the questions is, in fact, quite simple. The CCS Directive ensures in Article 37 that installations for capturing CO₂ are regulated under the IPPC Directive 2008/01/EC concerning Integrated Pollution Prevention and Control for certain industrial activities, including emissions, and in Article 31 that both CO₂ capture, (pipeline) transport and storage sites are regulated under EIA Directive 85/337/EEC as amended by Directive 97/11 on the assessment of the environmental impacts of certain projects. Furthermore, the new Directive entails in Article 35 (and 36) that CO₂ is to be excluded from the definition of waste. In this chapter we will focus on these three major parts of environmental legislation: IPPC-legislation, waste legislation and environmental impact assessment legislation. In the following sections we will assess the current applicable environmental legal framework (IPPC, EIA and Waste treatment) and will address the impact of the CCS Directive.

2. REGULATING LARGE EMITTERS

There are at least three European Directives that large emitters of CO₂ should be aware of when assessing environmental law aspects of capture: the Emissions Trading Scheme Directive 2003/87 (ETS), the Integrated Pollution Prevention and Control Directive 2008/1 (IPPC) and the Large Combustion Plants Directive 2001/80 (LCP).⁸ The impact of the new CCS Directive on these directives and the Dutch EMA is discussed below.

2.1. THE EUROPEAN TRADING SCHEME

The European Trading Scheme is and will be the European cornerstone in climate change mitigation efforts. It is the first international trading system for CO₂ emissions in the world. It covers energy-intensive installations across the EU, which represent close to half of Europe's emissions. These installations include combustion plants, oil refineries, coke ovens, iron and steel plants, and factories making cement, glass, lime, brick, ceramics, pulp and paper. Directive 2003/87 demands an emissions trading system for CO₂.⁹ The directive ensures however the possibility for a Member State to expand the (national) trading scheme to other greenhouse gases. For the trading system to work the Directive requires all large installations mentioned in Annex I of the Directive to have a greenhouse gas emissions permit. The conditions for the application and the content of this permit are laid down in Articles 5 and 6 of the ETS Directive. Article 8 provides for coordination with the permit that is required on the basis of the IPPC Directive (see section 2.2). For the trading scheme to work properly, this permit will not include an emissions limit value for CO₂ and will not set conditions to regulate prevention of emissions. For that reason this permit is just the formal prerequisite for the trading scheme. The more important aspect is of course that every installation mentioned in Annex I is awarded a specific number of allowances that is set in National Allocation Plans. The National Allocation Plans determine the total quantity of CO₂ emissions that Member States grant to their companies. Each Member State must *ex ante* decide how many allowances to allocate in total for a trading period and how many allowances each installation covered by the Emissions Trading Scheme will receive. The main provisions that connect the permit and the allowances granted in the National Allocation Plans can be found in Article 6(2)(b) and (e) of the ETS Directive. There are obligations for an installation to monitor the emissions of greenhouse gases and to surrender allowances equal to the total emissions of the installation in the previous calendar

⁸ Directives 2003/87/EC, 2008/1/EC and 2001/80/EC.

⁹ See also Chapter 1 by Wilbert Gevers and Lennart Luten.

year. Trading takes place with regard to these allowances. When an installation emits CO₂ more than it has allowances to surrender, it will have to buy allowances from other participants in the trading scheme.

There is an obvious connection to CCS. If safely captured, transported and stored, CO₂ would still be considered emitted, and there would be no incentive to invest in CCS. Directive 2009/29 amends the ETS Directive to that extent. The explanatory memorandum that came with the Commission's¹⁰ proposal to amend the ETS Directive states:

'In view of the long-term potential for emissions reductions from CCS, and pending the entry into force of Directive 2009/31/EC on the geological storage of carbon dioxide, installations undertaking the capture, transport and geological storage of greenhouse gases should be included in the Community system. While Article 24 offers the appropriate legal framework for unilateral inclusion of such installations pending the entry into force of the said Directive, activities concerning capture, transport and geological storage of greenhouse gas emissions should be explicitly mentioned in Annex I of the Directive, in order to provide clarity.'

This means that Article 24 of the (at that time applicable) ETS Directive offered Member States (from 2008 onwards) the possibility to opt in activities related to CCS that were not previously covered by the Directive. Although Commission approval is required, there is an opportunity to regard captured and stored CO₂ as not emitted under the old ETS Directive. However, important amendments were made to this ETS Directive by Directive 2009/29. In the amended Directive, installations for capturing, transporting and storing CO₂ are mentioned in Annex I of the Directive. This will incentivise CCS for CO₂ captured from installations of large emitters. Captured, transported and stored CO₂ *without leakage* will be regarded as not emitted and will therefore not require the surrender of allowances by the operators of the installations mentioned in Annex I. The possibility of leakage has led to the introduction of several monitoring obligations for operators of ETS installations. Leakage of CO₂ will be seen as emitted and will require the surrender of allowances by the operator of the installation responsible for the leakage.

The amendments to the ETS Directive will not change the fact that the ETS permit does not include conditions for the prevention of CO₂ emissions. The amended Directive sets the necessary prerequisites for the CO₂ allowances market to incentivise instruments for the reduction of CO₂ emissions like CCS. It is not just the fact that it defines stored CO₂ as not emitted. The amended

¹⁰ COM(2008) 16 final.

Directive also makes sure that allowances for CO₂ emissions will be reduced at the European level. Article 9 of the amended Directive states that the Community-wide quantity of allowances issued each year starting in 2013 shall decrease in a linear manner beginning from the mid-point of the period from 2008 to 2012. The quantity shall decrease by a linear factor of 1.74% compared to the average annual total quantity of allowances issued by Member States in accordance with the Commission Decisions on their national allocation plans for the period from 2008 to 2012. The expectation on the basis of the ETS Directive is that, when the price of allowances continues to rise on the market, CCS is likely to become competitive around 2030. When CCS indeed becomes competitive with other instruments for the reduction of CO₂, large emitters will make market-based decisions on the use of CCS as one of many instruments that can be used to reduce CO₂ emissions. By creating a regulatory regime for CCS, the EU has made sure that CCS is among the options. However, it will not be obligatory for large emitters to capture, transport and store CO₂.

2.2. THE INTEGRATED APPROACH TO POLLUTION PREVENTION AND CONTROL

2.2.1. *Scope of the IPPC Directive*

One of the most important environmental directives today is the already mentioned Directive 96/61 concerning Integrated Pollution Prevention and Control (IPPC Directive).¹¹ As its title suggests, the Directive promotes a horizontal approach to environmental protection. This new approach was felt necessary by the European legislator because a sectoral approach to controlling emissions into the air, water or soil may encourage the shifting of pollution between the various environmental media rather than protecting the environment as a whole.

The IPPC Directive applies only to installations, defined in Article 2(3) as stationary technical units in which one of the activities listed in Annex I of the IPPC Directive and any other directly associated and technically connected activities are carried out. The effect of Annex I is to basically confine the scope of the IPPC Directive to large (defined in terms of production capacity) industrial installations producing, *inter alia*, energy, metals, minerals (cement), chemicals and various other categories such as intensive animal husbandry. Currently, the

¹¹ This directive has recently been published, as Directive 2008/1, in OJ 2008 L 24/8. See on this directive in general J.H. Jans & H.H.B. Vedder, *European Environmental Law* (Groningen 2008), chapter 8, par. 5.

following relevant energy industries are listed in Annex I: combustion installations with a rated thermal input exceeding 50 MW; mineral oil and gas refineries; coke ovens; coal gasification and liquefaction plants. The CCS Directive amends the IPPC Directive in order to cover capture of CO₂ streams for the purpose of geological storage from installations covered by the IPPC Directive. To that effect Article 37 of the CCS Directive adds a new point (6.9) to Annex I of the IPPC Directive:

‘6.9 Capture of CO₂ streams from installations covered by this Directive for the purposes of geological storage pursuant to Directive 2009/31/EC of the European Parliament and of the Council [the CCS Directive; authors].’

The consequence of this amendment is that industrial activities within the installations covered by the IPPC Directive is now governed by this Directive, but not the transport or the storage of CO₂. The implications of this amendment are discussed below. According to the impact assessment of the proposal for the CCS Directive, the European Commission examined the suitability of the IPPC Directive for the storage of CO₂, but found that its framework was found not to be well adapted to regulating risks of CO₂ storage.¹² The CCS Directive requires a permit for the storage site and that regulatory framework should be regarded as *lex specialis* in relation to the IPPC Directive for it (no longer) requires a permit for a CO₂ storage site. Furthermore, the risks of transporting CO₂ will be dealt with by the EIA Directive(s). The IPPC Directive is therefore only applicable to the process – if applied in an installation already covered by the IPPC Directive – of capturing CO₂. Its applicability is only with regard to CO₂ captured *for the purpose of geological storage pursuant to the CCS Directive*. This means first that both carbon capture without the purpose of storage and carbon capture with the purpose of storage outside the EU aren’t covered by the IPPC Directive. Second, it means that the interpretation of ‘capture of CO₂’ is important. The term is frequently used, but surprisingly has no definition in the CCS Directive. Still, Member States will have the obligation to transpose the term into national law.¹³ Mentioning ‘capture of CO₂ streams’ in Annex I makes it clear that the IPPC Directive is applicable to this activity. Any new installation where capture of CO₂ (for the purpose of geological storage) is carried out will be subject to the regulatory framework of the IPPC Directive. However, the addition does not arrange for an obligation for any of the installations already mentioned in Annex I, to capture CO₂. By adding point 6.9 to the list, the capturing of CO₂ is subject to the regulations of the IPPC Directive insofar as the CO₂ stream is captured

¹² The possibility to use the Seveso II Directive is still under consideration.

¹³ No problem for the Netherlands as the Dutch EMA in Article 1.1 refers to the IPPC Directive explicitly, and its Annex I.

from an installation that is *already* covered by the IPPC Directive. Whether this installation should or at least be ready to capture CO₂ isn't assured by the amended IPPC Directive. In other words, capture of CO₂ is not prescribed by this directive.

2.2.2. *Obligations under the IPPC Directive*

The following general obligations of the IPPC Directive will become applicable to an Annex I installation where *capture* of CO₂ is carried out. According to the general obligations on the operator, listed in Article 3 of the Directive, Member States are required to ensure that installations are operated in such a way that, *inter alia*, all the appropriate preventive measures are taken against pollution, in particular through application of the best available techniques; no significant pollution is caused; the necessary measures are taken to prevent accidents and limit their consequences; the necessary measures are taken upon definitive cessation of activities to avoid any pollution risk and return the site of operation to a satisfactory state.

The integrated approach required by the IPPC Directive is to be implemented by means of permits. To ensure an integrated approach to issuing permits, Article 7 requires substantive, as well as procedural integration. As regards the latter, Member States are required to ensure that the procedure for the grant of the permit is fully coordinated where more than one competent authority is involved. The various permitting authorities for the capture installation are therefore required to coordinate their activities to ensure that the long-term impacts of the capture of CO₂ are assessed. The substantive integration is to be ascertained by a requirement of full coordination with respect to the conditions of the permit. The permit must contain conditions that guarantee that the installation complies with the IPPC Directive; otherwise the permit must be refused (Article 8).

The most important conditions of the permit take the form of the requirement in Article 9(3) to include in the permit emission limit values for pollutants likely to be emitted from the installation. Emission limit values shall be based on the 'best available techniques' (BAT), without prescribing the use of any technique or specific technology, but taking into account the technical characteristics of the installation concerned, its geographical location and the local environmental conditions. An important question is whether an emission limit value for CO₂ can be set in the permit that is based on the IPPC Directive. The answer lies in the third, fourth, fifth and sixth paragraphs of Article 9(3) of the Directive. Those paragraphs make it clear that where emissions of a greenhouse gas from an installation are specified in Annex I of the ETS Directive – as is the case with

CO₂ – in relation to an activity carried out in that installation, the permit shall not include an emission limit value for direct emissions of that gas unless it is necessary to ensure that no significant local pollution is caused. For CO₂ this will in most cases mean that the permit on the basis of the IPPC Directive cannot be used to set emission limit values.

The prohibition of setting such emission limit values in the permitting system of the IPPC Directive is clearly related to the system of emissions trading. If large emitters are subjected to the IPPC Directive in this aspect, they will have to comply with the best available techniques to limit the emissions of CO₂. That compliance will have its effect on emissions and the economic system of emissions trading. Therefore the prohibition of setting emission limit values makes sense. However, in 2008 there was discussion in the European Parliament on a possible amendment to the IPPC Directive that intended to change this situation. The amendment would have deleted the third, fourth, fifth and sixth subparagraphs of Article 9(3) IPPC Directive. The reason for proposing this amendment was the increasing urgency to cut greenhouse gas emissions and therefore the need to use other instruments in addition to the emissions trading scheme, for example output-based emissions performance standards. That makes the ban on emissions limit values in permits based on the IPPC Directive no longer appropriate and therefore it should be removed.¹⁴ The amendment would have enabled competent authorities to include emission limit values for CO₂ in permits that are based on the legislation implementing the IPPC Directive. However, it was not adopted by the European Parliament.

Article 16(2) of the IPPC Directive requires the European Commission to organise ‘an exchange of information between Member States and the industries concerned on best available techniques, associated monitoring and developments in them’, and to publish the results of the exchange. The purpose of this information exchange is ‘the development and exchange of information at Community level about best available techniques will help to redress the technological imbalances in the Community, will promote the world-wide dissemination of limit values and techniques used in the Community and will help the Member States in the efficient implementation of this Directive’ (Article 25). The European Commission established an information exchange forum to assist the work under Article 16(2). The aim of the documents produced is to reflect accurately the exchange of information which has taken place as required by Article 16(2) and to provide reference information for the permitting authority to take into account when determining permit conditions. By providing

¹⁴ See amendment 124, proposed in Parliament.

relevant information concerning best available techniques, these documents should act as valuable tools to drive environmental performance. These documents provide important foundations for the understanding of best available techniques reference documents (BREFs), which are designed to demonstrate the best available techniques (BAT) for each sector covered by the IPPC Directive. The process of making BREFs is controlled by the European Integrated Pollution Prevention and Control Bureau (EIPPCB).

Some of the provisions of the CCS Directive in relation to the IPPC Directive are relevant. First, the amended IPPC Directive would not require new installations to capture or be equipped to capture CO₂, nor is there the prospect of a horizontal BREF that would state that capturing CO₂ is the best available technique; paragraphs in Article 9(3) prohibit including emission limit values for CO₂ in the IPPC permit. The change that the CCS Directive brings to the IPPC Directive will mean that this directive is applicable for certain installations for the capture of CO₂. The permit on the basis of the IPPC Directive should therefore prescribe the best available techniques for these capture installations, but only when these installations are applied. Problematic could be that there is no existing data to establish a BREF on CO₂ capture installations and it is questionable if the proposed demonstration projects could be the basis for such data in the near future.

2.2.3. New Developments

The future of the IPPC Directive lies in a proposal for a Directive on industrial emissions that the European Commission adopted on 21 December 2007.¹⁵ The Commission aims to improve the EU policy on industrial emissions by introducing a proposal for a Directive on industrial emissions (integrated pollution prevention and control) that would recast seven existing Directives related to industrial emissions into a single clear and coherent legislative instrument. The recast includes the IPPC Directive but also the Large Combustion Plants Directive, the Waste Incineration Directive, the Solvents Emissions Directive and three Directives on Titanium Dioxide. The new Directive reaffirms and enhances the application of BAT and will introduce minimum provisions covering the inspection of industrial installations, the review of permits and reporting on compliance. This proposal for a Directive on industrial emissions does not refer to the deployment of CCS in Europe. However, this new directive that integrates the IPPC Directive and the LCP Directive (see below) could be a good starting point to rethink the relation between industrial emissions and the capturing of CCS.

¹⁵ See COM(2007) 843 final.

2.3. REGULATING LARGE COMBUSTION PLANTS

Like the IPPC Directive, the Large Combustion Plants Directive 2001/80 applies to all combustion plants intended for the production of energy having a rated thermal input of 50 MW or more without prejudice to the type of fuel used, except the incineration of waste. The LCP Directive requires every permit for such a plant to set emission limit values with respect to SO₂, NO_x and dust. The relation between the LCP Directive and the IPPC Directive is much discussed. Compliance with the emission limit values laid down by the LCP Directive should be regarded as a necessary but not sufficient condition for compliance with the requirements of the IPPC Directive regarding the use of BAT. The use of Bat may result in setting more stringent emission limit values. Until this moment however, there are no relevant standards in the LCP Directive that are related to CCS or to the emission of CO₂. However, Article 33 of the new CCS Directive adds Article 9a to the LCP Directive:

‘1. Member States shall ensure that operators of all combustion plants with [...] a rated electrical output of 300 megawatts or more for which the original construction license or, in the absence of such a procedure, the original operating licence is granted after the entry into force of Directive 2009/31/EC of the European Parliament and of the Council, have assessed whether the following conditions are met:

- suitable storage sites are available;
- transport facilities are technically and economically feasible;
- it is technically and economically feasible to retrofit for CO₂ capture.

2. If the conditions in paragraph 1 are met, the competent authority shall ensure that suitable space on the installation site for the equipment necessary to capture and compress CO₂ [...] is set aside. The competent authority shall determine whether the conditions are met on the basis of the assessment referred to in paragraph 1 and other available information, particularly concerning the protection of the environment and human health.’

This Article subjects any new (very) large combustion plant to a test on the possibility of future CCS activities (‘Capture-ready’). As a suitable space for a capture installation would take the space of approximately one or two soccer fields and as there is no guarantee that the assessment of the possibilities for CCS would under the circumstances lead to the denial of a licence for a plant, the requirements shouldn’t be overrated. It would already be quite a step to regard being capture-ready as a best available technique.

A relevant observation is, however, that a proposed more stringent amendment to the LCP Directive was *not* adopted. This amendment was discussed by the European Parliament and would have introduced Article 4a (instead of 9a) that

was known as the “Schwarzenegger Clause” for it sets a performance standard that is used in contracts by the State of California:¹⁶

‘1. Member States shall ensure that from 1 January 2015 the operating permit for all electricity-generating large combustion installations with a capacity greater than 300MW granted a construction permit or, in the absence of such a procedure, granted an original operating permit after 1 January 2015 include conditions requiring compliance with an emission performance standard of 500 g CO₂/kWh.’

If this Article had been adopted it would have introduced an emissions performance standard for new power-producing combustion plants with a rated output of 300 MW or more. An amendment like that would have changed the relation between the ETS Directive, the IPPC Directive and the LCP Directive. All large combustion plants would need a permit on the basis of the IPPC Directive and that directive does not allow for an emissions limit value for CO₂ as such an emissions limit value would have a negative influence on the emissions trading system. The proposed amendment to the LCP Directive would of course not set an emission limit value but would probably have a similar effect on the emissions trading market. This is an effect that would contravene the Commissions point of view that the ETS Directive is the beating heart of the European climate change mitigation efforts. In that respect there is a close relation between the proposed amendment to the LCP Directive and another amendment that was discussed and would have deleted the third, fourth, fifth and sixth subparagraphs of Article 9(3) of the IPPC Directive that prohibit setting an emissions limit value for CO₂. Following objections from the Council, however, both deleting the subparagraphs and setting an emissions performance standard, which would effectively make CCS for newly built coal-fired power plants mandatory, is not included in the final text.

2.4. IMPLEMENTATION IN THE DUTCH ENVIRONMENT MANAGEMENT ACT

All the relevant provisions relating to the emissions trading system and the relevant emissions permit have been transposed into Chapter 16 of the Dutch EMA, in which chapter the general and main purpose of the permit is the ability to oblige the operator of the installation to monitor emissions and surrender allowances equal to the total emissions of the installation in the previous calendar year. Installations used for capture, transport and storage of CO₂ from 2013 onwards in the emissions trading scheme will probably just require some

¹⁶ See amendment 126, proposed in Parliament.

technical adjustments of the Dutch EMA. The EMA points directly to Annex I of the (amended) ETS Directive so the introduction of the new installations to Annex I will be accomplished without changing the legislation. Other aspects of the ETS Directive in relation to CCS are discussed elsewhere in this book.¹⁷

The permitting system included in the IPPC Directive was implemented in Chapter 8 of the Dutch EMA. This transposition has had a significant influence on the obligation to obtain a permit in the Netherlands. Before transposition, the legal system of the EMA obligated any operator of an '*inrichting*' to obtain a permit. After transposition, this system has shifted significantly. In principle the obligation to obtain a permit now only applies to an '*inrichting*' that contains an installation as mentioned in Annex I of the IPPC Directive. Although critics have claimed that the term '*inrichting*', which has its own definition in the EMA and in Dutch case law, is obsolete in light of the IPPC Directive and problems could occur when trying to attune both terms, the current system is functioning. The transposition does however accomplish that any installation (or activity) that occurs in Annex I of the IPPC Directive, will be obliged to have a permit based on the (transposed) regulations of the IPPC Directive. As the EMA explicitly refers to Annex I of the IPPC Directive, it seems to us that only a technical adjustment is required. The CCS Directive does not require new installations to capture or be equipped to capture CO₂ nor is there the prospect of a (horizontal) BREF in the near future for capture installations. More relevant for the capture of CO₂ is the implication of the third, fourth, fifth and sixth subparagraphs in Article 9(3), which were transposed into Article 8:13a EMA. This Article prohibits setting an emission limit value for CO₂ in the conditions of the permit. Like the IPPC Directive, the Dutch EMA prohibits the competent authority to include in the permit emission limit values for a greenhouse gas that is included in the European Emissions Trading Scheme or impose requirements relating to energy efficiency in respect of combustion units or other units emitting carbon dioxide on the site.¹⁸

Implementing the LCP Directive is linked directly to the permitting system of Chapter 8 of the EMA. The requirements that are set in this Directive must be, when they are applicable, included in this permit. According to the CCS Directive the competent authorities shall ensure that an assessment is carried out for all new (very) large combustion plants. The relevant conditions for this assessment are whether suitable storage sites are available, whether transport facilities are technically and economically feasible and whether it is technically and

¹⁷ See chapter 4 by Edwin Woerdman and Oscar Couwenberg.

¹⁸ See Article 8:13a EMA.

economically feasible to retrofit for CO₂ capture. These conditions are of course related to CCS, but do not mandate CO₂ capture readiness.

2.5. CONCLUDING REMARKS

As mentioned earlier, the current legal regime does not oblige any major emitter to capture CO₂. Any capture of CO₂ will be the result of initiatives taken by the emitters. Obviously the EU ETS regime will stimulate such initiatives, especially when the carbon price is going up. Be that as it may, a more stringent capture requirement would nearly have been included if two amendments that were proposed in the European Parliament had been accepted. The suggestion to delete the third, fourth, fifth and sixth subparagraphs of Article 9(3) of the IPPC Directive would have opened the path for including an emission limit value for CO₂ in the permit on the basis of the IPPC Directive. A combination with the amendment known as the “Schwarzenegger Clause” that stated that from 1 January 2015 any new operating permit for a combustion plant with a capacity greater than 300 MW should include conditions requiring compliance with an emission performance standard of 500 g CO₂/kWh, would lead to far more stringent regulation for large combustion plants than the CCS Directive. It would have effectively obliged CCS for any coal-fired combustion plant from 2015 onwards. These amendments were however not accepted and included in the final text of the CCS Directive.

3. CCS AND ENVIRONMENTAL IMPACT ASSESSMENT

3.1. EU DIRECTIVES GOVERNING ENVIRONMENTAL IMPACT ASSESSMENT

Environmental impact assessment (EIA) is a, mainly, procedural instrument requiring an assessment of the environmental effects of certain activities in advance.¹⁹ In the EU, environmental assessment is required for certain projects and plans. For *projects* the legal framework consists of the Environmental Impact

¹⁹ See on the subject in general J.H. Jans & H.H.B. Vedder, *European Environmental Law* (Groningen 2008), chapter 8, par. 3; see on EIA J. Koornneef, A. Faaij, W. Turkenburg, ‘The screening and scoping of Environmental Impact Assessment and Strategic Environmental Assessment of Carbon Capture and Storage in the Netherlands’ [2008] *Environmental Impact Assessment Review* 28(6) at p. 393.

Assessment (EIA) Directive.²⁰ Article 2(1) of the EIA Directive is one of the central provisions and requires that, before consent is given, projects likely to have significant effects on the environment by virtue, *inter alia*, of their nature, size or location are made subject to a requirement for development consent and an assessment with regard to their effects. A Strategic Environmental Assessment (SEA) is an EIA for a plan – that is less evolved than a project – and is (therefore) conducted at a strategic level. An SEA aims to identify the environmental effects of plans at an early stage. The content of the SEA depends on the level of detail and stage of the plans, the available information, knowledge and evaluation methods. This means that environmental aspects of strategic decisions are discussed before actual project EIAs are requested. For large-scale new projects like (elements of) CCS it is likely that both are required.

To implement Article 2(1) the EIA Directive distinguishes between so-called Annex I projects which are always made subject to an assessment (Article 4(1)) and Annex II projects where the Member States shall determine through a case-by-case examination, and/or thresholds or criteria set by the Member State whether the project shall be made subject to an assessment (Article 4(2)). When a case-by-case examination is carried out or thresholds or criteria are set, the relevant selection criteria set out in Annex III shall be taken into account. These include both the characteristics of the project (its size, the accumulation with other projects, the use of natural resources, the production of waste, pollution and nuisances and the risk of accidents), its location (the environmental sensitivity of geographical areas likely to be affected) and the characteristics of the potential impact (the extent of the impact, the transfrontier nature, the magnitude and complexity, the probability and the duration, frequency and reversibility of the impact).

Although the Directive allows Member States considerable freedom as to the manner in which the assessment should be carried out, Article 5(3) provides that the information to be provided should include at least a description of the project comprising information on the site, design and size of the project, a description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects, the data required to identify and assess the main effects which the project is likely to have on the environment, an outline of the main alternatives studied by the developer and an indication of the main reasons for his choice, taking into account the environmental effects and a non-technical summary of the information.

²⁰ Directive 85/337 on the assessment of the effects of certain public and private projects on the environment, OJ 1985 L 175/40, as amended by Directive 97/11, OJ 1997 L 73/5 and Directive 2003/35, OJ 2003 L 156/17.

Besides this, the Directive lays down rules that have to be complied with before consent for a project is given. Consultation of the public is inherent in the EIA instrument. Member States are required to ensure that any request for development consent and any information in that connection are made available to the public within a reasonable time in order to give the public concerned the opportunity to express an opinion before the development consent is granted (Article 6(2)). The logical consequence of these provisions is that the results of consultations and the information gathered must be taken into consideration in the development consent procedure (Article 8).

3.2. EIA FOR CCS?

Currently, neither installations for the capture of CO₂ streams, nor pipelines for the transport and neither CO₂ streams, nor CO₂ storage sites *as such* are subject to EIA. As the goal of the CCS Directive is to introduce regulation for environmentally safe capture, transport and storage of CO₂, and an impact assessment is an important part of preventing environmental damage, the CCS Directive amends the EIA Directive as follows (Article 29 of the CCS Directive).²¹ Point 16 of Annex I is amended to include '16. Pipelines with a diameter of more than 800 mm and a length of more than 40 km: [...] for the transport of carbon dioxide streams for the purposes of geological storage [...], including associated booster stations.' Furthermore, to Annex I two new points (23 and 24) are added, in order to subject CO₂ storage sites and installations for the capture of CO₂ streams for the purposes of geological storage pursuant to the Geological Storage of Carbon Dioxide Directive from installations covered by Annex I of the EIA Directive, or where the total yearly capture of CO₂ is 1.5 mega tonnes and more to an EIA. Installations for the capture of CO₂ streams not covered by Annex I of the EIA Directive will be classified as an Annex II project (see points i and j to point 3 of Annex II).²²

²¹ M. Schurmans & A. van Vaerenbergh, 'The Proposed EU Legislation on Geological Carbon Capture and Storage (CCS): A First Impression of the Commission's Proposed Framework on CCS', *European Energy and Environmental Law Review* Vol. 17 (2008), Issue 2, p. 95–96.

²² On the interaction between the proposed point 24 in Annex I and the proposed addition to Annex II, see M. Schurmans & A. van Vaerenbergh, 'The New Proposed EU Legislation on Geological Carbon Capture and Storage (CCS): A First Impression of the Commission's Proposed Framework on CCS', *European Energy and Environmental Law Review* 2008 (vol. 17), issue 2, p. 96.

3.3. IMPLEMENTATION IN THE DUTCH ENVIRONMENTAL MANAGEMENT ACT

The EIA Directive is implemented in Chapter 7 of the EMA. For the Netherlands, one could assess whether the EMA needs to be amended in order to adjust to new European law and the introduction of CCS. The EIA Decree 1994, which is based on the EMA and on the European Directives (97/11/EG and 85/337/EG), defines the cases for which an EIA has to be performed and the cases for which the need for an EIA has to be assessed. On top of that it defines situation in which there could be strategic decisions made that affect the environment during the formulation of regional and local spatial plans. Such decisions might require a Strategic Environmental Assessment (SEA). When an EIA becomes mandatory for CO₂ storage projects, a SEA will also have to be conducted at a strategic level.²³

Like the current European Directives, the EIA Decree itself does not explicitly refer to CCS activities. It does, however, refer to the storage of (large amounts of) waste, for which an EIA has to be performed. Where a 'critical value' is defined in the EIA Decree, an EIA has to be performed when the scale of the storage of waste is larger than the critical value mentioned in the EIA Decree. There is an obligation to perform an EIA for activities and decisions that are listed in the C category in the Annex of the EIA Decree. These activities include the storage of large amounts of waste in the deep subsurface. A critical value for the storage of waste is the design capacity of the installation 'intended for the placement of non-hazardous waste in the deep subsurface, not being dredging spoil'. When this exceeds 500,000 m³ an EIA is required for the activity. For some activities (placed in the D category) the competent authority decides whether an EIA has to be conducted based on specifications, location, correlation with other activities and specific environmental issues associated with the activity. Activities that might relate to the storage of CO₂ are the drilling of wells (not wells for the purpose of research on ground stability, archaeological research or the exploitation of oil, natural gas or salt) and the subsoil storage of natural gas if the storage capacity exceeds 1 million m³. There is an obligation to assess the requirement for an EIA for executing, changing or extending deep drilling (in the case of CCS creating an underground storage facility by making use of an existing mining installation). Furthermore, there is an environmental impact assessment obligation for a change in or expansion of an installation for the storage of hazardous and non-hazardous waste. Finally, for any mining activity,

²³ See Anton Ming-Zhi Gao, 'The Application of the European SEA Directive to Carbon Capture and Storage Activities: The Issue of Screening', *European Energy and Environmental Law Review* 2008 (vol. 17), issue 6, p. 341–371 (also see: <http://ssrn.com/abstract=1167796>).

which will take place in one of the Ecological zones in the Netherlands, an EIA has to be conducted. Taking into account the existing requirements and since captured CO₂ probably will be defined as waste until the CCS Directive is transposed into Dutch law (see section 4), an EIA is obligatory for CO₂ storage according to the Dutch EIA Decree. For non-hazardous waste the obligation is applicable when the capacity exceeds 500,000 m³.

3.4. CONCLUDING REMARKS

The Geological Storage of Carbon Dioxide Directive requires the Member States to subject all major CCS-related activities to environmental impact assessment. Furthermore, the EIA Directive requires that the information gathered in the EIA procedure must be taken into account by the public authority giving the consent. Our first question is whether different methods for capturing CO₂ should be described and assessed in an EIA for the capture installation (for the purpose of geological storage). The first impression is that this is indeed necessary, but we could be wrong as the IPPC Directive will be of major influence to the question as to which method of capture will qualify as the best available technique. With regards to the amendments of the EIA Directive in general, *Schurmans* and *Van Vaerenbergh* raise a couple of interesting and more technical issues. Important to our contribution seems the question to what extent different obligations to perform an EIA can be combined in some way or another. In most cases there will be a close relationship between capture, transport and storage. If that is the case, one could argue that it could be necessary or desirable to assess the environmental impact of a CCS project as a whole, whether it concerns a strategic impact assessment in an early stage or an EIA for a concrete project.

The changes to the EIA Directive will oblige Member States to implement the amendments in their national system of EIA. In the case of the Netherlands it will require changing the EIA Decree by adding the points added to the European Directives. All major CCS-related activities will have to be subjected to environmental impact assessment.

4. CCS AND THE TREATMENT OF WASTE

4.1. THE WASTE FRAMEWORK DIRECTIVE

In the previous chapter a reference was made to the impact of CO₂ being waste. The Waste Framework Directive 2006/12 lays down general rules that apply to all

categories of waste.²⁴ Central to this directive and the rest of European waste law is the concept of 'waste'. 'Waste' is defined in Article 1(a) of the Directive as any substance or object in the categories set out in Annex I 'which the holder discards or intends or is required to discard'. Point Q8 of Annex I mentions 'Residues of industrial processes' as a category of waste. According to D3 of Annex IIA waste 'disposal' covers any of the operations listed in that annex and includes depositing into land, deep injection procedures, surface impoundment and release into the seas or oceans.

Although both Annex I (Categories of Waste) and Annex IIA (Disposal Operations) of the Waste Directive are indicative only, they do imply that the geological storage of CO₂ is a method of discarding a waste product. Therefore one would easily come to the conclusion that *captured* CO₂ – for the purpose of underground storage – must be regarded as waste. This interpretation is supported by Article 2 (1)(a) of the Directive which excludes a number of categories from the scope of the Directive, such as gaseous effluents emitted into the atmosphere. This category is particularly interesting in connection with geological storage of CO₂. As only the emission into the atmosphere is excluded, this provision must *a contrario* mean that all other ways of discarding CO₂ is to be regarded as waste within the meaning of the Directive.

In view of the conclusion that captured CO₂ should be regarded as waste, all substantive obligations of the Waste Framework Directive must be complied with in the case of geological storage of CO₂. The obligations include, *inter alia*, the following three elements.

First, Article 3 of the Directive contains the so-called waste hierarchy and requires Member States to take appropriate measures to encourage the prevention or reduction of waste production, the recovery of waste or the use of waste as a source of energy. The waste hierarchy makes waste prevention the first objective, followed by recovery of waste and the disposal of waste as the last option. This provision applied to the geological storage of CO₂ would imply that storage would only be acceptable as a means of last resort and would therefore discourage the use of CCS.

Secondly, Article 5 embodies the key elements of European waste law like the self-sufficiency and proximity principles. Member States are required to establish an integrated and adequate network of disposal installations. The network must

²⁴ OJ 2006 L 114/9. See on this directive in general J.H. Jans & H.H.B. Vedder, *European Environmental Law* (Groningen 2008), chapter 8, par.15. The Landfill Directive (1999/31/EC), Hazardous Waste Directive (91/689/EC) and Transfrontier Shipment of Waste Regulation No.1013/2006 may also be important for the regulatory framework for CCS.

enable the EU as a whole to become self-sufficient in waste disposal and the Member States to move towards that aim individually (Article 5(1)). The network must also enable waste to be disposed of in one of the nearest appropriate installations (Article 5(2)). These obligations do not necessarily run parallel with the policy goals for promoting CCS.

Finally, Article 7 of the Waste Directive requires Member States to draw up waste management plans. Movements of waste which are not in accordance with these waste management plans must be prevented (Article 7(4)). Undertakings which carry out waste disposal operations or operations which may lead to recovery of waste must obtain a permit from the competent authority (Articles 9 and 10). The Directive further contains provisions on the cost of disposal of waste (Article 15). The latter provides that, in accordance with the polluter pays principle, the cost of disposing of waste must be borne by: the holder who has waste handled by a waste collector and/or the previous holders or the producer of the product from which the waste came. The need for yet another permit and the possible costs to the holder who has waste handled by a waste collector could have a negative effect on deployment of CCS.

4.2. AMENDMENTS TO THE WASTE DIRECTIVE FACILITATING CCS

Indeed, the European waste legislation is not well adapted to the specific requirements of regulating CO₂ transportation and storage. It is therefore not surprising that the CCS Directive came up with a rather drastic solution. It amends the Waste Framework Directive in such a manner that CO₂ captured and transported for the purpose of geological storage in accordance with the provisions of the Geological Storage of Carbon Dioxide Directive is excluded completely from the scope of the Waste Directive (see Article 35 of the CCS Directive).

The scope of the Waste Directive will in the future exclude the discarding of CO₂ *for the purpose of geological storage in accordance with the CCS Directive*. Not surprisingly this means that any use of captured CO₂ for other useful purposes will have to be seen as the discarding of waste in light of the Waste Framework Directive. It also means that discarding of CO₂ for the purpose of storage outside the EU, should still be considered the discarding of waste. This would have the somewhat odd consequence that transport of CO₂ outside the EU remains subject to the provisions of Regulation 1013/2006 on shipments of waste, applicable since

12 July 2007.²⁵ It goes well beyond the scope of this chapter to discuss this extremely complicated piece of legislation with respect to all aspects of CCS. However, with respect to the definition of ‘waste’ it refers back to the definition of ‘waste’ in the Waste Framework Directive. The consequence of this is that the export of CO₂ outside the EU, will be subject to Title IV (Articles 34 et seq.) of the regulation. The basic rule is a prohibition of all exports for disposal (Article 34(1)), with an exception for EFTA countries that are also a party to the Basel Convention (Article 34(2)). In any case, the regulatory framework for discarding CO₂ for the purpose of storage outside the EU is considerably more stringent and restricted than the regulatory framework for storage inside the EU. This also triggers the question whether this differential (or discriminating?) treatment complies with the trading rules of GATT 1994, Articles I and III in particular. We will leave this issue, for the time being, as it is. In this respect it is also likely that capture for the purpose of storage outside the EU will not be considered under the European Trading System, in which captured CO₂ will under circumstances be regarded as not emitted.

Another problem could be that the exclusion from the Waste regulation only applies to CO₂. It seems unavoidable that a percentage of a CO₂ stream will consist of associated substances. The much discussed Article 12 of the CCS Directive provides that a CO₂ stream shall consist *overwhelmingly* of CO₂, but allows for associated substances. Concentrations of associated substances may not adversely affect the integrity of the storage site and transport infrastructure, nor pose a significant threat to the environment or breach the requirements of applicable Community regulations. A small percentage of associated substances could be – seen separately – considered (hazardous) waste. *Pure* CO₂ will probably not be classified as hazardous waste under EU regulations, as the Hazardous Waste Directive (91/689/EEC) does not include CO₂ in the list of hazardous substances. Still, Article 12 of the CCS Directive will probably ensure that a possible small percentage of associates (hazardous) substances in the CO₂ stream will be allowed. As soon as a threshold is exceeded, these associated substances could be considered (hazardous) waste.

4.3. IMPLEMENTATION IN THE DUTCH ENVIRONMENTAL MANAGEMENT ACT

Relevant European waste law has been implemented in the Dutch EMA. The conclusion that storing CO₂ is to be considered waste under the European waste regulation corresponds with the proposed text for the second Dutch National

²⁵ OJ 2006 L 190/1.

Waste Management Plan (LAP 2), which is based on the EMA. It states that ‘if CO₂ is stored in the ground and as a result will not be released into the atmosphere, this will be seen as storage of waste’.²⁶ Although the LAP 2 could therefore in principle be applicable to the storage of CO₂, the underground storage of CO₂ is specifically mentioned as excluded from the draft policy. This activity was not taken into account when policy makers were preparing it. Some guidelines, such as the recoverability requirement are based on the storage of radioactive and highly toxic waste and should therefore not necessarily apply to CO₂ storage. The guidelines are therefore not particularly suitable for CO₂ storage. The Dutch government acknowledged the gap in this regulation and has therefore made an exception for CO₂ storage. This means that the new LAP 2 will not be applicable to CCS.

4.4. CONCLUDING REMARKS

Current legislation, be it European or Dutch, defines CO₂ as waste. The consequences of this definition are the following; first of all it means that according to the current legislation, the regulatory framework for waste is applicable to captured CO₂. Secondly, it means that the Dutch National Waste Management Plan (LAP 2) could be applicable, although until now it has not been. Therefore the conditions for CO₂ storage specifically are not yet defined. Under the circumstances the European CCS Directive excludes captured CO₂ from the scope of the Waste Framework Directive. Article 12 of the CCS Directive even allows for a small percentage of associated substances. Still, contaminants of a CO₂ stream could be seen as waste or even as hazardous substances if a certain threshold is crossed.

5. AN INTEGRATED APPROACH TO CCS?

In the previous sections we discussed the most important environmental aspects of the CCS Directive. We noted that environmental law is relevant for each and every part of the CCS chain. Another relevant question could be whether the integrated approach to CCS by the new Directive will be mirrored by national legislation. An integrated approach of CCS projects would probably be beneficial to the deployment of CCS. In the Netherlands, some major changes in environmental law are pending which may be relevant to that question.

²⁶ The Dutch text of the proposed LAP for 2009–2021 is available at www.vrom.nl (see p. 140).

The Dutch government is a strong advocate of an integrated approach of projects that are regulated by environmental law, including spatial, zoning and building law. Therefore the Netherlands strives to have an Environmental Licensing (General Provisions) Act. The main purpose of the proposed Environmental Licensing Bill (*Wabo*) is to establish a single, straightforward procedure and a single competent authority for persons or businesses seeking permission for activities which affect the physical environment,²⁷ including environmental and other permits required for CCS. However, the question is whether a CCS project – consisting of capture, transport and storage – will be seen as an activity for which just one single permit is needed. Although almost all existing permits that are needed to either capture *or* store CO₂ will indeed be included in the single permit system, the permit that is needed for the storage of substances that was introduced in the mining Act and could be used to implement the CCS Directive is not part of the *Wabo*. As a consequence it seems that no integrated assessment of the CCS project will be made by any one public authority. It should be noted that it is highly probable that all public authorities involved will try and coordinate their permitting procedures, but no such obligation exists at the moment. In any case, it is also possible that CCS cannot be seen as one project as the operator of the capture installation, the operator of the transport installations and the operator of the storage site might be three different entities.

Another illustration of the Dutch government's idea that large projects should be dealt with by just one competent administrative authority, is a proposal regarding the coordination of all kinds of permits in relation to decisions on the basis of the new Dutch Spatial Planning Act.²⁸ A new Spatial Planning Act entered into force on 1 July 2008. In section 3.6.3 it provides for the possibility of governmental bodies to coordinate permit and application procedures as long as some spatial interest is involved. The idea behind this concept is similar to the incentive for the *Wabo* in the sense that the Dutch government aims at streamlining all major energy infrastructure projects. According to the new Spatial Planning Act the coordination section is applicable in situations involving a mining installation in a conservation area, a mining installation for the purpose of CO₂ storage and pipelines connecting such mining installations.²⁹ The competence to coordinate all necessary permit applications is assigned to the Minister of Economic Affairs. Although no competence to grant permits has been designated, the Minister has been awarded spatial planning powers to overrule other competent authorities. It

²⁷ A summary of the proposal is available at www.vrom.nl/pagina.html?id=2706&sp=2&dn=8049.

²⁸ Kamerstukken II 2007/08, 31 326.

²⁹ This proposal was accepted by both Upper and Lower House of Parliament and is expected to come into operation in 2009; see *Stb.* 2008, 416.

seems that the Dutch government wants to stipulate that large energy infrastructure projects like pipelines for transport, as well as mining installations for the purpose of storage of CO₂ are of national interest and that that interest should be protected at national level. If we combine this information with the knowledge that the Netherlands potentially has a large storage capacity, it is no surprise that the Dutch government felt that the Netherlands should play a significant role in the deployment of CCS in Europe and the world.

6. CONCLUSION

The above analysis of existing and proposed environmental law has made it quite clear that at the time of writing mandatory capture cannot be imposed on large combustion plants. The Commission acknowledges that mandatory capture would stimulate earlier deployment, but only at substantial additional cost. Hence, it was decided not to make capture mandatory at this stage. The European Trading Scheme remains the cornerstone in Europe's climate change mitigation efforts. The new CCS Directive does however resolve some important legal issues concerning environmental law for the proper deployment of CCS in Europe. We believe that a suitable balance has been found between existing environmental law and the wish to stimulate CCS activities in the near future in an environmentally safe way. The resolving of legal issues concerned with the deployment of CCS triggers, however, the question whether the Member States, on the basis of their national legislation, have the capacity to require from energy producers that the environmental licences required will only be granted if CCS is deployed. In the Netherlands, for instance, it was argued that environmental licences for two hard coal-fired plants should be granted only on the condition that they would be built to be capture-ready. As we have noted above, most energy producers are covered by the IPPC Directive. According to Article 3 of the IPPC Directive, all appropriate preventive measures are to be taken in order to avoid pollution, in particular through application of the best available techniques. The relevant BAT reference document for energy producers under the IPPC Directive is the BREF for Large Combustion Plants. Of course no emission limit values for CO₂ can be set in the permit, but there could still be possible conflicts between using the best available techniques and the ban on prescribing the capture of CO₂. Provided that there are no such conflicts we wonder if a Member State could be regarded competent, ex Article 176 EC, to require energy producers in one way or another to capture (and store) CO₂. This would of course have significant effects on the (European) emissions trading system. On the other hand the Geological Storage of Carbon Dioxide Directive clarifies that Member States retain the right to determine the areas from which storage sites may be selected

(Article 2). It must be assumed that the Member States also have the right to prohibit storage on their territory (and EEZ and continental shelf) completely, if they so desire. The CCS Directive does not (yet) require CCS in any relevant way. Only the future can tell whether this is to the benefit or to the detriment of the environment.

